

# **Does gender influence mobility difficulty among older persons in Uganda? Examining socio-demographic determinants**

**ABEL NZABONA and JAMES NTOZI**

## **Abstract**

Mobility difficulty among older persons presents health and transport concerns in Uganda where health and transport systems are still undergoing development. Although some information on later life mobility difficulty exists, less is known about associated risk factors. This study of 605 older persons from 4 rural districts and one urban centre examines socio-demographic determinants of mobility of older persons in Uganda. The findings from a binary logistic regression indicates older persons who were female, uneducated, with no migrant children, with land and lived in thatched houses were more likely to have mobility difficulty than those who were male, more educated, with out-migrant children and landless. It is recommended that an osteoporosis wing be set up in the country's public health units, age-friendly urban centres be developed and a special old age fund be established.

## **Introduction**

Mobility difficulty is rife among older persons in Uganda; a country whose health and transport systems are still developing. In the remote parts of the country, absence of age-friendly transport infrastructure could compound older persons' mobility challenge. Mobility difficulty is therefore indicative of not only health challenges but also other social and economic constraints. For example in hilly areas, mobility difficulty is a huge impediment to engagement in economic activities. Older persons are unlikely to climb steep slopes and fetch firewood; something that they used to do with comparative ease during their prime ages. Similarly, persons having feet joint ill-health could be unable to readily travel to health centres. Although some information on later life mobility difficulty exists, less is known about associated risk factors. This study bridges the gap by examining the socio-demographic determinants.

## **Data and methods**

The paper uses primary data from a cross-sectional study entitled *Determinants of value and challenges of older persons in Uganda* that was conducted in March 2012. In the study, stratification was used to select four districts from four strata that comprise the major national zones of the country namely Central, Eastern, Northern and Western regions. Using simple random sampling, four rural districts were selected from the four regions. In addition, Kampala City was purposively selected as the fifth regional stratum to represent the urban sector.

Probability sampling approach was adopted to ensure ultimate national representativeness of results. The *Kish method* of sample size determination (Kish, 1965) was used to select 605 persons aged 60 and above. Age was the inclusion / exclusion criterion and 60 was the cut-off age mark.

An interviewer-administered questionnaire was used to collect data. Each older person that was interviewed was asked whether he or she had any difficulty in moving. The EPIDATA software was used to capture quantitative data generated by the interviewer-administered questionnaire. The data was subsequently exported to STATA programme for univariate, bivariate and multivariate analysis.

Since mobility difficulty, the dependent variable, was dichotomous (*has mobility difficulty* or *no mobility difficulty*), the binary logistic regression model was used to predict prevalence of mobility difficulty. This model is expressed as:

$$\text{logit} [p(X)] = \log \left[ \frac{p(X)}{1 - p(X)} \right] = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_k x_k;$$

where  $\alpha$  is the intercept and  $\beta_1, \beta_2, \beta_3, \text{e.t.c.}$ , are the regression coefficients of  $x_1, x_2, x_3$  respectively. The independent variables,  $x_1 \dots x_k$ , included age, sex, residence, education, marital status, child out-migration status, land ownership, social protection status and type of fuel for cooking.

## **Results**

### **Bivariate analysis**

Close to three quarters (73%) of the older persons reported experiencing mobility difficulty. It is showed in Table 1 that the proportion of older persons with mobility difficulty was higher among females (81%) than their male counterparts (57%). This could be attributed to disproportionate resource availability in which females were less able than males to afford appropriate medication as well as the heavy workload often borne by females during the prime working years. The disparity could also be attributed to females being older than their male counterparts. The association between sex and mobility status was statistically significant ( $p=0.000$ ).

It is further showed in Table 1 that mobility difficulty varied by region. Difficulty in moving was greatest in Northern Uganda where 87 percent of older persons experienced this problem. The effects of the conflict in the northern region could explain the high proportion in this part of the country. The much higher level for Northern region may also be associated with relatively lower accessibility and affordability of age-specific health facilities. Nonetheless, the level of moving difficulty for older persons living in Eastern, Western and Kampala and Central regions (76%, 72%, 70% and 59% respectively) was also quite high. Central region had the lowest level of just under 60 percent. These findings point to the need for addressing this challenge to avert translation of poor mobility into other psychosocial problems such as loneliness and isolation. The association between moving difficulty and region was highly statistically significant ( $p=0.000$ ).

Table 1 further indicates variations in moving difficulty by level of education. As level of education decreased, the proportion of persons with moving difficulty increased. It is showed in Table 1 that whereas the proportion of older persons with moving difficulty was 45 percent for older persons with tertiary and higher level of education, the level was 48 percent for those with secondary education, 74 percent among those with primary education and 80 percent for those with no education. It is probable that education was positively correlated with income and better health-seeking behaviour. Older persons with primary and lower level of education may thus have been more disadvantaged than their more educated counterparts. The association between hearing difficulty and level of education was highly significant ( $p=0.000$ ).

Difficulty in moving was also associated with the marital status of older persons. About 8 in 10 older persons who were widowed (81%) were experiencing difficulty in moving. Just over three quarters of older persons who were divorced/separated (76%) had difficulty in moving while a comparatively lower proportion was experienced among the married older persons (64%). The vulnerability associated with widowhood could explain higher prevalence of mobility difficulty among older persons who were widowed. The association between marital status and difficulty in moving was statistically significant ( $p=0.000$ ).

**Table 1 Percentages of older persons by mobility difficulty by selected variables\***

<b>Variable</b>	<b>Have mobility difficulty (%)</b>	<b>Do not have mobility difficulty (%)</b>	<b>Number</b>
<b>Sex</b>	<b>72.7</b>	<b>27.3</b>	<b>601</b>
Male	57.1	42.9	210
Female	81.1	18.9	391
$\chi^2=39.4, p=0.000$			
<b>Region</b>	<b>72.7</b>	<b>27.3</b>	<b>601</b>
Western	71.7	28.3	120
Central	58.9	41.1	124
Eastern	76.1	23.9	113
Northern	87.2	12.8	125
Kampala	69.8	30.2	119
$\chi^2=26.4, 0.000$			
<b>Education</b>	<b>72.7</b>	<b>27.3</b>	<b>601</b>
No education	79.9	20.1	299
Primary	73.8	26.2	210
Secondary	47.5	52.5	61
Tertiary+	45.2	54.8	31
$\chi^2=39.3, p=0.000$			
<b>Marital status</b>	<b>72.7</b>	<b>27.3</b>	<b>601</b>
Married	64.4	35.6	267
Widowed	80.6	19.4	248
Divorced/separated	75.6	24.4	86
$\chi^2=17.5, p=0.000$			
<b>Living arrangement</b>	<b>72.7</b>	<b>27.3</b>	<b>601</b>
Alone	84.8	15.2	92
Spouse	67.7	32.3	62
Spouse & kids	65.5	34.5	87
Grandchildren	79.6	20.4	137
Other	67.7	32.3	223
$\chi^2=15.8, p=0.003$			
<b>Social organisation role</b>	<b>71.9</b>	<b>28.1</b>	<b>306</b>
Leader	63.0	37.0	81
Ordinary member	75.1	24.9	225
$\chi^2=4.4, p=0.037$			
<b>Child outmigration status</b>	<b>72.6</b>	<b>27.4</b>	<b>599</b>
Has out-migrated children	66.8	33.2	301
No out-migrated children	78.5	21.5	298
$\chi^2=10.4, p=0.001$			
<b>Radio set ownership</b>	<b>72.9</b>	<b>27.1</b>	<b>593</b>
Owns radio	68.3	31.7	322
No radio	78.2	21.8	271
$\chi^2=7.3, p=0.007$			
<b>TV set ownership</b>	<b>72.9</b>	<b>27.1</b>	<b>593</b>
Owns TV	55.6	44.4	90
No TV	75.9	24.1	503
$\chi^2=16.0, p=0.000$			
<b>Mobile phone ownership</b>	<b>72.7</b>	<b>27.3</b>	<b>593</b>
Owns mobile phone	61.7	38.3	196
No mobile phone	78.1	21.9	397
$\chi^2=17.7, p=0.000$			
<b>Ownership of domestic animals</b>	<b>72.9</b>	<b>27.1</b>	<b>590</b>
Owns animals	67.4	32.6	267

No animals	77.4	22.6	323
$\chi^2=7.4, p=0.007$			
<b>Work environment before age 60</b>	<b>73.0</b>	<b>27.0</b>	<b>597</b>
Public/private sector	57.8	42.2	90
Self employed	73.3	26.7	225
Unpaid employee	78.9	21.1	213
Casual worker	73.9	26.1	69
$\chi^2=14.4, p=0.002$			
<b>Current income generation</b>	<b>72.7</b>	<b>27.3</b>	<b>601</b>
Active	58.9	41.1	163
Not active	77.9	22.1	438
$\chi^2=21.5, p=0.000$			
<b>Social protection status</b>	<b>72.7</b>	<b>27.3</b>	<b>601</b>
Receives pension	54.3	45.7	35
No pension entitlement	73.9	26.1	566
$\chi^2=6.4, p=0.012$			
<b>Fuel for cooking</b>			
Firewood	72.6	27.4	460
Charcoal	67.9	32.1	109
Straw/grass/shrub	90.3	9.7	31
$\chi^2=6.1, p=0.047$			
<b>Roof material of shelter</b>	<b>72.9</b>	<b>27.1</b>	<b>598</b>
Iron sheets	71.5	28.5	529
Other roof material	84.1	15.9	69
$\chi^2=4.9, p=0.027$			
<b>Wall material of shelter</b>	<b>72.8</b>	<b>27.2</b>	<b>592</b>
Mud and poles	81.4	18.6	188
Burnt bricks and cement	70.1	29.9	234
Unburnt bricks and mud	73.1	26.9	78
Other wall material	62.0	38.0	92
$\chi^2=13.3, p=0.004$			

\*Age, residence, religion, social organisation membership, ownership of any means of transport, land ownership and shelter floor material were not significantly associated with mobility difficulty.

Mobility difficulty was also associated with the socio-demographic variables of living arrangement and social organisation role. The highest proportion was for the elderly living alone (85%) while the lowest existed among the elderly staying with spouses and kids (66%). Living alone and being immobile constituted a double challenge which could adversely affect the older persons' quality of life. Living arrangement had a statistically significant association with mobility difficulty ( $p=0.003$ ).

Regarding social organisation role, the highest proportion was among the elderly who were ordinary members (75%) while the lowest was among those who were leaders (63%). A probable reason for this disparity is that persons with mobility difficulty would not be keen at offering themselves as social organisation leaders and also because leadership positions are not often

given to the physically unfit. It is also probable that executing leadership role could have offered the leaders some opportunity to engage in physical activity and thus brightened their chances of staying relatively more physically fit than their counterparts who were not in leadership positions. Social organisation role had a statistically significant association with mobility difficulty ( $p=0.037$ ).

Sixty seven percent of older persons whose children were living outside their parents' usual place of residence had mobility difficulty while the corresponding proportion among the elderly who did not have out-migrated children was 79 percent. Child out-migration may have indirectly influenced better health through the role of remittances. In the event that successful out-migrant children sent money to their parents, it is probable the funds were used to support parental healthcare needs. The association between child out-migration and mobility difficulty was statistically significant ( $p=0.001$ ).

Ownership of media equipment was also associated with mobility difficulty. The proportions of the elderly with mobility difficulties were higher among those who did not own radio, television and mobile phone (78%, 76% and 78% respectively) than their counterparts who owned these facilities (68%, 56% and 62% respectively). Ownership of these facilities implies being rich and able to afford medical care than those without the properties, who are poor. Availability of such media facilities could also have indirectly influenced health status through information transfer.

Table 1 shows that the proportion of the elderly with mobility difficulty who did not possess domestic animals (77%) was higher than the corresponding figure for those without any livestock (67%). Management of domestic animals can sometimes be burdensome and immobile elderly would not want to keep animals they cannot look after. It is also probable that some older persons may have used funds accruing from livestock to meet their health care needs. The association between ownership of domestic animals and mobility difficulty was statistically significant ( $p=0.007$ ).

Whereas 79 percent of older persons who were unpaid employees before turning 60 years experienced difficulty in moving, the corresponding proportions were slightly lower for those

who were casual workers and self employed before turning 60 (74% and 73% respectively). It is further showed that the situation was much better for older persons who had worked in the public/private sector for whom the proportion was only 58 percent. This disparity could have been occasioned by differences in resources and thus ability to afford appropriate care during and after the prime years of working. The association between difficulty in moving and activity before age 60 was statistically significant ( $p=0.002$ ).

Table 1 further indicates that difficulty in moving was also associated with current engagement in income-generating activities. Whereas 59 percent of older persons who were engaged in income generating activities had difficulty in moving, the corresponding figure for those who were not actively engaged in such activities was 78 percent. It is probable that engagement in income-generating activities provided an opportunity for active physical movements as well as income that enabled the elderly afford services that reduce mobility constraints. The association between difficulty in moving and income generation was statistically significant ( $p=0.000$ ). Similarly, whereas only just over half of the elderly who were receiving pension (54%) were experiencing mobility difficulty, the corresponding figure among those who were not entitled to pension was almost three quarters (74%). Persons receiving pension may have used their retirement benefits to meet their healthcare costs. The association between pension status and mobility difficulty was statistically significant ( $p=0.012$ ).

Results further indicate that mobility difficulty was associated with shelter conditions (Table 1). Whereas only 72 percent of older persons who were staying in houses with iron sheets were experiencing mobility difficulty, the corresponding figure for those staying in structures roofed using other materials (such as thatch, tarpaulin or polythene) was 84 percent. Similarly, whereas only 70 percent of older persons who were staying in houses with walls built of burnt bricks and cement had mobility difficulty, the corresponding figure for those staying in structures with mud and poles was 81 percent. Persons staying in low quality shelter were also likely to belong to low socioeconomic category and thus unable to afford the basic healthcare services.

## Logistic regression analysis

Results in Table 2 indicate that females were more likely to have mobility difficulties than their male counterparts (OR=2.5; p=0.000). Table 2 further shows that education was significantly associated with mobility difficulty. In comparison with older persons of no education, those with secondary and above level of education were less likely to have mobility difficulty (OR=0.5; p=0.040). Older persons who did not own land were less likely to have mobility difficulty than those who possessed it (p=0.536; p=0.019). Older persons having children who had out-migrated to other parts of the country were less likely to have mobility difficulty than their counterparts whose children were non-migrants (OR=0.6; p=0.034). Table 2 further shows that mobility difficulty was significantly associated with type of fuel used for cooking. In comparison with older persons who used charcoal for cooking, the elderly who were using straw/grass/shrub were more likely to have mobility difficulty (OR=4.3; p=0.042).

**Table 2. Logistic regression: Factors significantly influencing mobility difficulty of older persons\***

Variable	Coefficients	Odds Ratio	Std. Err.	<i>p</i>
<b>Sex</b>				
Male**		1.000		
Female	0.927	2.527	0.653	<b>0.000</b>
<b>Education</b>				
No education**		1.000		
Primary	-0.017	0.983	0.252	0.947
Secondary+	-0.715	0.489	0.170	<b>0.040</b>
<b>Land ownership</b>				
Owns land**		1.000		
No land	-0.623	0.536	0.143	<b>0.019</b>
<b>Child out-migration status</b>				
Has out-migrated children	-0.448	0.639	0.135	<b>0.034</b>
No out-migrated children**		1.000		
<b>Fuel for cooking</b>				
Charcoal**		1.000		
Firewood	0.085	1.088	0.333	0.782
Straw/grass/shrub	1.452	4.274	3.045	<b>0.042</b>

\*The full logistic model included other variables but which were not statistically significant namely: Age, residence, marital status, living arrangement, radio set ownership, television set ownership, mobile phone ownership, ownership of any means of transport, ownership of domestic animals, old age social protection status, main material of the floor, main material of the roof and main material of exterior walls were not significantly associated with mobility difficulty.

\*\* Reference category

## Discussion

The sex differentials in mobility difficulty could be due to social factors including disproportionate access to social services such as education and employment. Girls and women in Uganda have in the past, and to some extent even today, been bedevilled by lower levels of



education and formal employment in comparison to their males counterparts. Besides, there has been a tendency for more female engagement in strenuous livelihood activities such as agricultural and household chores especially in the rural parts of the country. All these circumstances may have had a bearing on their ultimate mobility status at old age. Other studies have similarly indicated a sharper rise in mobility limitation in women than men aged 65 and above (Mottram, Peat, Thomas, Wilkie & Croft, 2008).

Differentials in mobility difficulty by education could be influenced by variations in resources which education engenders. The less educated persons in the country may have had less income and other resources; a phenomenon that hindered their ability to afford basic orthopaedic services. Other studies have also indicated that socioeconomic circumstances affect the prevalence and scale of physical disability at old age (Gjonca, Tabassum & Breeze, 2009). Findings elsewhere have similarly reported higher likelihood of mobility limitation among persons of low education than their higher educated counterparts (Mottram et al., 2008). Research further indicates that low social economic status (SES) is related to multiple physiological impairments, which largely explains the association between education and gait limitation (Coppin et al., 2006). The authors indicate that for all age and sex strata, mean values of gait speed scores were lower among individuals reporting lower education level. Large differences in person years lived with disability have been established between education groups (Melzer, Izmirlian, Leveille & Guralnik, 2001).

Interestingly, older persons who did not own land were less likely to have mobility difficulty than their counterparts who possessed it. This is an intriguing result without a straight forward interpretation, considering that some studies have shown that older men owning assets such as home and car had a lower risk of disability than those who owned neither, even after adjusting for a wide range of risk factors (Ebrahim, Papacosta, Wannamethee & Adamson, 2004). In this current study, lack of influence of land ownership on reducing the risk of mobility difficulty could probably be that the landless were workers on land who would need to be mobile and active compared to the rich with land who would be tempted to be inactive. However, paucity of empirical evidence calls for further research in this area.

The lower likelihood of mobility difficulty among older persons having children who had out-migrated to other parts of the country could be associated with remittances received from out-migrated sons and daughters. Such income could probably have raised older parents' socioeconomic status and consequently contributed to the higher capacity of affording orthopaedic services. Although there is limited literature on the direct link between migration and mobility difficulty, there is ample evidence indicating that migration results in substantial increase in household incomes through remittances (Bredl, 2011; Du, Park & Wang, 2005).

The higher likelihood of mobility difficulty among older persons who were using straw/grass/shrub for cooking could be associated with overall lower social economic status in comparison with those who used charcoal. The former category could have been poorer older persons who were therefore less able to afford basic health services, including orthopaedic care, as well as general health care information. Limitation in access to information has been linked to challenges faced by older persons in later life (WHO, 2007).

### **Conclusion and recommendations**

The findings have several policy and programme implications. It is recommended that an osteoporosis wing be set up in the country's public health units, age-friendly urban centres be developed and a special old age fund be established in order to enhance older persons' health leading to less difficulties in mobility.

### **References**

- Bredl, S. (2011). Migration, remittances and educational outcomes: The case of Haiti. *International Journal of Educational Development*, 31(2), 162–168. doi:<http://dx.doi.org/10.1016/j.ijedudev.2010.02.003>
- Coppin, A. K., Ferrucci, L., Lauretani, F., Phillips, C., Chang, M., Bandinelli, S., & Guralnik, J. M. (2006). Low socioeconomic status and disability in old age: evidence from the InChianti study for the mediating role of physiological impairments. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 61(1), 86–91.
- Du, Y., Park, A., & Wang, S. (2005). Migration and rural poverty in China. *Journal of Comparative Economics*, 33(4), 688–709. doi:<http://dx.doi.org/10.1016/j.jce.2005.09.001>

- Ebrahim, S., Papacosta, O., Wannamethee, G., & Adamson, J. (2004). Social inequalities and disability in older men: prospective findings from the British regional heart study. *Social Science & Medicine*, 59(10), 2109–2120.  
doi:<http://dx.doi.org/10.1016/j.socscimed.2004.03.019>
- Gjonca, E., Tabassum, F., & Breeze, E. (2009). Socioeconomic differences in physical disability at older age. *Journal of Epidemiology and Community Health*, 63(11), 928–935.
- Melzer, D., Izmirlian, G., Leveille, S. G., & Guralnik, J. M. (2001). Educational Differences in the Prevalence of Mobility Disability in Old Age The Dynamics of Incidence, Mortality, and Recovery. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 56(5), S294–S301.
- Mottram, S., Peat, G., Thomas, E., Wilkie, R., & Croft, P. (2008). Patterns of pain and mobility limitation in older people: cross-sectional findings from a population survey of 18,497 adults aged 50 years and over. *Quality of Life Research*, 17(4), 529–539.
- WHO. (2007). *Global Age-friendly Cities: A Guide*. Geneva.